

Acquisition of Head-Internal Relative Clauses Revisited

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1. Introduction

The availability of a relative clause construction called the head-internal relative clause (henceforth, HIRC) construction is one intriguing issue to pursue in that it poses a question of what parameters in the Principles-and-Parameters approach to Universal Grammar (including Minimalist Program) (cf. Chomsky 1995) make this construction possible in a given language. Japanese is a language which allows HIRCs as well as a head-external relative clause (henceforth, HERC). A HERC is similar to relative clauses in European languages in that it has its head noun outside its modifying clause, whereas a HIRC has its head noun within its modifying clause. In addition to Japanese, HIRCs are permitted in a wide variety of languages. Given the availability of HIRCs, this construction has been extensively investigated especially in comparison with the HERC construction, not only in the field of Japanese linguistics, but also in the body of cross-linguistic research.

From a language acquisition perspective, Isobe (2003, 2005) and Lee (1991) have reported that HIRCs are already acquired by Japanese-speaking 3-year-olds and Korean-speaking 2-year-olds. Specifically, in order to test an acquisitional prediction following a generalization by Cole (1987), Isobe (2003, 2005) experimentally investigated Japanese-acquiring children's knowledge of HIRCs, using ambiguous test sentences between HIRCs and HERCs, and found the early acquisition of HIRCs, irrespective of their extremely low frequency in adult input. This finding suggests that parameters like the Head Parameter and the Pro-Drop Parameter determine the availability of HIRCs.

However, one of the methodological problems observed in Isobe (2003, 2005) is that, though they are really structurally-ambiguous and adults can resolve their ambiguity by prosody, the test sentences were presented to the participants only with prosody more advantageous to the HIRC interpretation. This experimental condition can raise the possibility that such prosody played an effective role for children to interpret the test sentence as a HIRC and that, as a result, the given test sentence was no longer ambiguous. This problem provides an important research question, namely, whether or not young children really have knowledge of both the HIRC and the HERC and can resolve ambiguity between the HIRC and HERC like adults by making use of prosodic information.

The current study aims to revisit Japanese-speaking children's acquisition of HIRCs in order to reconfirm its early acquisition and to strengthen the proposed generalization regarding the availability of HIRCs. I will explore experimentally not only their knowledge of HIRCs and HERCs but also their use of prosodic cues in ambiguous sentences. The results of this experiment will show that the participants have adult-like knowledge of both HIRCs and HERCs, which will lend further support to both the early mastery of these constructions and the syntactic proposal regarding the availability of the HIRC. At the same time, I will discuss the possibility that lexical/morphological cues such as

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one-mora particles are more reliable than prosodic cues for young children to determine a syntactic structure. Furthermore, I will argue that children have the same preference with respect to the interpretation of this type of ambiguous sentence as adults, which supports the view that children's processing mechanism is essentially the same as that of adults (Crain and Thornton 1998).

2. Previous Findings

2.1. Head-Internal Relative Clauses

One of the major Japanese syntactic properties is that it permits two different types of relative clauses. Like European languages, Japanese has not only HERCs as illustrated in (1a), but also a relative clause construction called the HIRC as exemplified in (1b).

(1) a. *HERC in Japanese:*

Ken-wa	[[Hiro-ga	teeburu-no	ue-ni	t_i	oitekureta]	ringo _i]-o	tabeta.
-Top	-Nom	table-Gen	on		put	apple-Acc	ate

'Ken ate the apple which Hiro put on the table.'

b. *HIRC in Japanese:*

Ken-wa	[[Hiro-ga	teeburu-no	ue-ni	ringo-o	oitekureta]	no]-o	tabeta.
-Top	-Nom	table-Gen	on	apple-Acc	put	Comp-Acc	ate

'Ken ate the apple which Hiro put on the table.'

In (1b), the nominal that is understood as the head appears in a position internal to the modifying clause. This HIRC construction has been extensively discussed in the area of Japanese syntax and semantics (e.g., Hoshi 1995, Kuroda 1992, 1999, Murasugi 1994, among many others). Moreover, in addition to Japanese, HIRCs are attested in a considerable number of genetically unrelated languages such as Korean (e.g., Jhang 1991), Navajo (e.g., Platero 1974), and Quechua (e.g., Cole 1987) (see Hirawa 2003 for the typology of HIRCs). Given the existence of such cross-linguistic variation, several attempts have been made to determine what parameters are crucially involved in determining the availability of HIRCs.

Among these attempts, Cole (1987) has claimed that HIRCs are possible only in those languages (i) that have the word order Object-Verb and (ii) allow productive use of null pronouns (see also Kuroda 1992). In other words, this analysis by Cole argues that the setting of the Head Parameter, which helps determine Object-Verb word order, and the Pro-Drop Parameter, which regulates the possibility of null pronouns, plays a crucial role in determining the possibility of HIRCs in a language.¹

2.2. Acquisition of Head-Internal Relative Clauses

Given the above generalization by Cole (1987), those children who have set the Head Parameter and the Pro-Drop Parameter correctly are expected to perform like adults on HIRCs. With regard to the acquisition of Japanese, it is reported that these parameters are set very early (Sugisaki 2008 for the setting of the Head Parameter and Nakayama 1996 for the setting of the Pro-Drop Parameter). Consequently, we can make an important acquisitional prediction: Knowledge of the HIRC should emerge very early in the acquisition of Japanese.

In order to test this prediction of early acquisition of HIRCs, Isobe (2003, 2005) conducted an experiment with 16 Japanese-speaking children between 3;0-4;6 of age. A sample story with a test sentence used in this study is as in (2), and at the end of the story the children were asked to answer the test sentence as in (3):

¹ Yet, this generalization is challenged by evidence from languages such as Mooré (Tellier 1989) and Gur languages (Hiraiwa 2008) which have VO word order and disallow null pronouns. See Hiraiwa (2008) for a novel proposal of a parameter which explains the cross-linguistic variation of HIRCs and some relevant properties.

(2) *Sample Story*:

A monkey, a panda, and a rabbit are playing outside. Suddenly it got dark and started raining. The rabbit said, “I have an umbrella” and opened it. The monkey got under the rabbit’s umbrella, but the panda wasn’t able to. When they all returned home, the panda was wet all over. The monkey brought a hair dryer for the panda, and dried him. As it stopped raining, they all went to play outside. But after a period of time, it suddenly started raining again. The rabbit said, “I have an umbrella” and opened it. The panda got under the rabbit’s umbrella, but the monkey couldn’t. When they all returned home, the monkey was wet all over. The panda brought a big towel for the monkey, and dried him.

(3) *Test sentence*: Osarusan-ga nurechatta-no-o dooyatte kawakashiteage-ta-kana?a. *HIRC interpretation*:

pro [osarusan-ga nurechatta no]-o dooyatte kawakashiteage-ta-kana?
 the monkey-Nom got wet Comp-Acc how dry made-Past-Q
 ‘How did he make dry the monkey, who got wet?’

b. *HERC interpretation*:

Osarusan-ga [t_i nurechatta no_i]-o dooyatte kawakashiteage-ta-kana?
 the monkey-Nom got wet one-Acc how dry made-Past-Q
 ‘How did the monkey make dry the one who got wet?’

c. *Child’s possible answer*:

HIRC interpretation: ‘By using a towel.’
 HERC interpretation: ‘By using a hair dryer.’

The test sentence (3) is structurally-ambiguous between (3a) and (3b). The structure in (3a) contains *pro* in the matrix subject position, which refers to an individual salient in the discourse, and the bracketed sequence *NP with Nominative-Verb-Complementizer* is an HIRC that is interpreted as the matrix object. On the other hand, in the structure in (3b), the first NP serves as the matrix subject. Furthermore, the morpheme *no* after the verb *got wet*, which can be translated as *the one*, is a pronoun that constitutes the head of the HERC. Notice that the same morpheme *no* acts as a complementizer in (3a) but a pronoun in (3b).

The results in this experiment were that the children answered the HIRC interpretation “by using a towel” about 97% of the time and thus provided the HIRC interpretation to the structurally-ambiguous questions like (3a). This finding indicates that the knowledge of the HIRC is in the grammar of Japanese-speaking children as young as 3.²

With respect to the frequency of HIRCs in the adults’ speech to children, Isobe (2003, 2005) has revealed that this construction is extremely rare. In her search of two Japanese-speaking children’s corpora (Aki and Tai, Miyata 2004a, b) available in the CHILDES database (MacWhinney 2000), only two potential examples were found in a sample of more than 124,000 lines of adult speech. Thus, the findings that young children acquire HIRCs even in the absence of direct experience lend strong support to Cole’s (1987) fundamental hypothesis that the setting of the Head Parameter and the Pro-Drop Parameter is sufficient to determine the availability of HIRCs.

3. Research Question

The current study focuses on one of the methodological problems in Isobe (2003, 2005): Test sentences such as (3) were given without careful prosodic consideration. Indeed, all the test sentences like (3) are structurally-ambiguous between a HIRC and a HERC, but they were given only with prosody more advantageous to the HIRC interpretation. In adult Japanese, prosody (or intonation) can function to differentiate the possible syntactic structures of phrases and sentences, and adults can use

² The participants in the experiment were also successful in interpreting unambiguous HERCs. Isobe (2003, 2005) also searched the Aki and Tai corpora, and determined that the children began producing HERCs with *no*, as in (3b), at the age of 2;9 (Aki) and 2;11 (Tai). In contrast, the children never reliably produced HIRCs in their speech.

prosody to distinguish the multiple interpretations of structurally-ambiguous sentences. According to my adult informants, the HIRC interpretation (3a) is strongly preferred for the sentence in (3), the reason of which will be explored in the discussion section below. While adults have such a preference, they can clearly differentiate between the two interpretations in (3) using prosody. Specifically, the pitch for the HIRC interpretation (3a) gradually declines until the optional prosodic boundary after the HIRC. On the other hand, for the HERC interpretation (3b), there is typically a pitch fall after the first NP, the matrix subject, which indicates a prosodic boundary. Then, the pitch rises on the verb *got wet* to mark the beginning of a relative clause. Thus, a critical viewpoint against Isobe's (2003, 2005) experiment is that prosody played a crucial role so that the participants could get appropriate answers in the experiment and that it is not clear whether these children really have knowledge of the HIRC.

In fact, this criticism does not seem to be very reasonable, since, unlike the period of infants' phonological bootstrapping (Morgan and Demuth 1986), both adults and children (aged around 3 or over) can supplementarily use prosodic information of a sentence only if they have the ability to create its syntactic structure. It implies that the participants in Isobe's (2003, 2005) experiment already have knowledge of HIRCs (and HERCs). Yet there still remains the possibility that the test sentences used in Isobe's (2003, 2005) experiment were in fact unambiguous in prosody and it is not apparent whether children can assign both HIRC and HERC structures according to the corresponding prosody.

Here is also a hidden premise: In the case where our grammar allows multiple interpretations to a certain sentence, there is some strategy exploited to decide which interpretation has priority, and both adults and children have such strategy. Yet, there is no knowing whether the strategy the participants in this experiment exploited is essentially the same as adults. Thus the current study challenges the following two research questions:

(4) *Research Questions:*

- a. Do young children really have knowledge of the HIRC as well as the HERC?
- b. Do young children use prosody to resolve ambiguity between the HIRC and the HERC?

Previous research on the use of prosodic cues in children's syntactic disambiguation has led to conflicting results. Some studies have shown that preschoolers are poor at syntactic ambiguity resolution using prosodic cues (e.g., Snedeker and Trueswell 2001, Choi and Mazuka 2003, Mizumoto 2006). For instance, Mizumoto (2006) has shown that prosodic cues such as pitch and duration of pause have almost no effect on Japanese-speaking children's definition of clause boundary. Other studies such as Mazuka and Tanaka (2006) and Snedeker and Yuan (2008) have reported that children around age 5 can use prosody to resolve ambiguity.

Thus, to examine these research questions in (4), I set up the experiment shown in the next section.

4. Experiment

4.1. *Participants and Methods*

The participants of the experiment were 17 Japanese-speaking monolingual children aged 3;3-5;4 (Mean= 4;3), living in the Tokyo area. They were divided into two groups, Group A (N=8, Mean = 4;1) and Group B (N=9, Mean= 4;4). They were interviewed individually.

The procedure of the experiment was as follows. The child was seated in front of a laptop computer and told to enjoy some short stories with animation with an elephant puppet standing in front of small external speakers. After telling each short story, the experimenter played a prerecorded sound file of the test sentence produced by a female native speaker of Japanese from an IC recorder connected to external speakers behind the puppet, which made it look as if the puppet were speaking. The child's task was a version of the Truth-Value Judgment Task (Crain and Thornton 1998), in which s/he had to judge whether the puppet's description was true or false in light of the story just told.

Each of the short stories was almost the same as used in Isobe (2003, 2005) but divided into two parts. A sample story with its test sentence, shown in (5), is derived from the last half of the story in (2):

(5) *Sample Story 1:*

A panda, a rabbit, and a monkey all went to play outside. But after a period of time, it suddenly started raining. The rabbit said, “I have an umbrella” and opened it. The panda got under the rabbit’s umbrella, but the monkey couldn’t. When they all returned home, the monkey was wet all over. The panda brought a big towel for the monkey, and dried him.

Test sentence: Pandasan-ga nurechatta-no-o kawakashi-ta yo.

The two possible interpretations for the test sentence in (5) are in (6):

(6) *Test sentence for Group A and B (Structurally-ambiguous, HIRC Prosody):*a. *HIRC interpretation* (Expected interpretation):

pro [pandasan-ga nurechatta-no]-o kawakashi-ta yo.
 the panda-Nom got wet Comp-Acc dry made-Past Excl

‘(Someone) made dry the panda, who got wet.’

b. *HERC interpretation* (Syntactically-possible interpretation):

Pandas-an-ga [nurechatta-no]-o kawakashi-ta yo.
 the panda-Nom got wet one-Acc dry made-Past Excl

‘The panda made dry the one who got wet.’

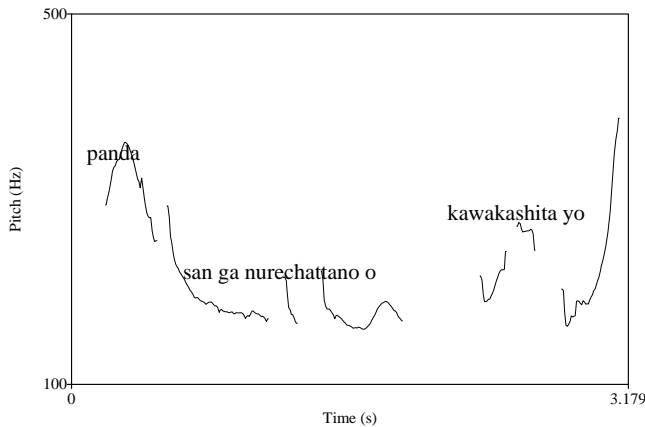


Figure 1: HIRC Prosody

This test sentence is structurally-ambiguous between the HIRC and the HERC, but in reality it is given to every participant with HIRC Prosody. Figure 1 shows the pitch contour for the test sentence in (5) presented to the participants. As depicted in this figure, the utterance with HIRC Prosody has a prosodic phrase boundary between *no-o* and the second verb, which suggests that a major syntactic break is there. If we phrase the phonological sequence before the second verb as a HIRC on the basis of prosodic information, the meaning of the whole test sentence does not match the story. Therefore, if a child answers false, it means that s/he interpreted it as a sentence with an HIRC. On the contrary, if the child answers true, it suggests that s/he gave the HERC interpretation to the test sentence, paying no attention to HIRC Prosody, because it is the panda who made dry the one who got wet. All participants in both groups were asked to judge four ambiguous sentences with HIRC Prosody like (6a). Half of the expected answers are true and the other half false.

Another story with its test sentences in (7) is based on the first half of the story in (2). In this story, each child got either (7a) or (7b) as a test sentence, according to the group s/he belongs to.

(7) *Sample Story 2:*

A monkey, a panda, and a rabbit are playing outside. Suddenly it got dark and started raining. The rabbit said, “I have an umbrella” and opened it. The monkey got under the rabbit’s umbrella,

but the panda wasn't able to. When they all returned home, the panda was wet all over. The monkey brought a hair dryer for the panda, and dried him.

- a. *Test sentence for Group A:* Pandasan-wa nurechatta no-o kawakashi-ta yo.
 b. *Test sentence for Group B:* Pandasan-ga nurechatta no-o kawakashi-ta yo.

The difference of the minimal pair (7a) and (7b) is that, in (7a), the first NP is marked by the topic marker *wa*, whereas in (7b), it is marked by the nominative marker *ga*. Because of the fact that the subject of an embedded sentence cannot be marked by the topic marker *wa*, (7a) is an unambiguous HERC sentence. Accordingly, (7a) has only the structure in (8a), and (8b) is impossible.

(8) *Test sentence for Group A* (Structurally-unambiguous, HERC Prosody):

a. *HERC interpretation* (Expected interpretation):

Pandas-an-wa	[nurechatta-no]-o	kawakashi-ta	yo.
the panda-Top	got wet one-Acc	dry made-Past	Excl
'The panda made dry the one who got wet.'			

b. *HIRC interpretation* (Impossible interpretation):

<i>pro</i>	[pandasan-wa nurechatta-no]-o	kawakashi-ta	yo.
	the panda-Top got wet Comp-Acc	dry made-Past	Excl
'(Someone) made dry the panda, who got wet.'			

The participants in Group A were given four unambiguous sentences like (7a) to check their knowledge of the HERC. On the other hand, those in Group B had to judge four ambiguous sentences such as (7b), which has two possible interpretations in (9a) and (9b), with HERC Prosody harmonious with the structure (9a). Figure 2 shows the pitch contour for the test sentence (7b) presented to the participants in Group B.

(9) *Test sentence for Group B* (Structurally-ambiguous, HERC Prosody):

a. *HERC interpretation* (Expected interpretation):

Pandas-an-ga	[nurechatta-no]-o	kawakashi-ta	yo.
the panda-Nom	got wet Comp-Acc	dry made-Past	Excl
'Panda made dry the one who got wet.'			

b. *HIRC interpretation* (Syntactically-possible interpretation):

<i>pro</i>	[pandasan-ga nurechatta-no]-o	kawakashi-ta	yo.
	the panda-Nom got wet Comp-Acc	dry made-Past	Excl
'(Someone) made dry the panda, who got wet.'			

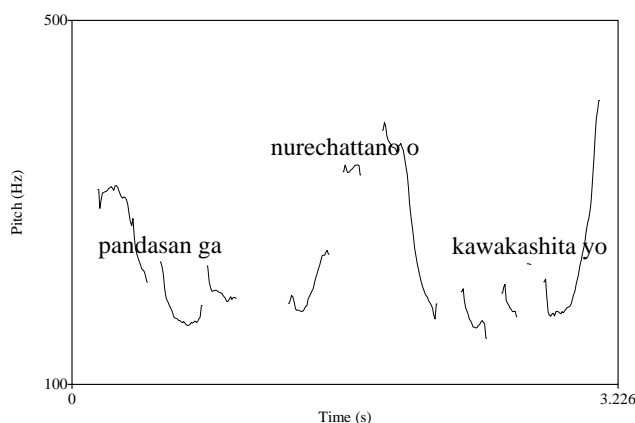


Figure 2: HERC Prosody

The test sentence (7b) consists of exactly the same lexical items as the one in (5), but they differ in

prosody. Accordingly, the structure (9b) is not consistent with HERC Prosody. In contrast, both of the test sentences in (7) are consistent with prosody, that is, HERC Prosody. As represented in Figure 2, the utterance with HERC Prosody has the presence of a prosodic boundary before the first verb *got wet*, which provides evidence that it does not constitute a phrase with the first noun. In addition, the pitch sharply rises at the start of the verb and then falls sharply near the beginning of the morpheme *no*.

Therefore, in the story in (7), if children in Group A answered false when given the unambiguous sentence as in (7a), it suggests that they correctly assign the HERC interpretation (8a) to the sentence. Similarly, if children in Group B answered false when given the ambiguous sentence as in (7b), it demonstrates that they are able to choose the interpretation (9a) that matched the auditory stimuli, that is, HERC Prosody. Again, half of the expected answers are true and the other half false.

In addition to the test sentences, each participant had to judge two practices and three fillers. All of the sentences for both Group A and B were randomized and presented to each child in the same order.

4.2. Results

The overall results are summarized in Table 1, where the expected answers are indicated by boldface.

	Test sentences	Ambiguity	Prosody	Types of Participants' Responses	
				HIRC	HERC
Group A	(5)	Yes	HIRC	29/32 (90.63%)	3/32 (9.37%)
	(7a)	No	HERC	5/32 (15.62%)	27/32 (84.38%)
Group B	(5)	Yes	HIRC	33/36 (91.67%)	3/36 (8.33%)
	(7b)	Yes	HERC	29/36 (80.56%)	7/36 (19.44%)

Table 1: Results of the Experiment

The results clearly show that the participants of both Group A and B were quite successful in assigning the HIRC interpretation to the ambiguous sentences as in (5). These results clearly demonstrate that children as young as 3 to 4 have knowledge of both HIRCs and HERCs. On the other hand, when it comes to the children in Group B who received the ambiguous sentences with HERC Prosody as in (7b), the performance was not consistent with such prosody. They interpreted these sentences with HIRCs 80.56% of the time.

Accordingly, the experiment produced the following major findings. First, it has clearly showed that children as young as around 3 to 4 have knowledge of the HIRC as well as that of the HERC, which is consistent with the findings in Isobe (2003, 2005). The second one is that the results of the structurally-ambiguous and HERC Prosody condition clearly suggest that children are much more sensitive to other cues than HERC Prosody.

Based on these results, the next section will discuss the possible contribution to the parametric proposal concerning the availability of HIRCs and then the reason why children assigned the HIRC interpretation to the structurally-ambiguous and HERC Prosody condition.

5. Discussion

The results of the experiment in the present study have reinforced the finding in Isobe (2003, 2005) that knowledge of HIRCs (as well as that of HERCs) already exists in the grammar of Japanese-speaking 3 to 4-year-olds. This finding lends further acquisitional support to the view by Cole (1987) that the settings of the Head Parameter and the Pro-Drop Parameter play a crucial role in determining the availability of HIRCs in a given language.

At the same time, the experiment has shown that given structurally-ambiguous sentences between the HIRC and the HERC, children gave priority to the HIRC interpretation regardless of HERC

Prosody. This result is surprising compared to the fact that they could allocate the HIRC structure to ambiguous sentences with HIRC Prosody and assign the HERC structure to sentences with HERC Prosody such as (7a). In what follows, we have some possible thoughts on this finding.

First, the current study claims that children have the same preference in interpreting ambiguous sentences as adults, not that they lack knowledge of HERCs or the ability of using prosodic information. It is apparent from the results of the experiment that children have knowledge of HERCs and can use prosody. Then, a preference perspective calls for adults' real preference. In my pilot study, I asked five adult speakers of Japanese to judge the test sentences in the same way as children in Groups A and B did. The results are that they assigned the HIRC interpretation to such sentences as (5) and the HERC interpretation to sentences like (7a) 100% of the time. In contrast, the rate for the HERC interpretation in sentences like (7b) declined to 80%. This difference between the rate in (5) and (7b) indicates that, though they can assign the suitable interpretation for certain prosody, adults' preference for the HIRC is still observable even with HERC Prosody in the situation (7b). This preference of adults' is assumed to derive from the uses of Japanese particles *wa* and *ga*.

While Japanese particles *wa* and *ga* share the function of marking the subject of the matrix sentences, the matrix-clause subject tends to be marked with *wa* to be the theme/topic of a sentence. The subject of the declarative sentence (10) can be both *wa*-marked and *ga*-marked, but *wa* is more natural.³ Moreover, as mentioned earlier, the two particles behave differently in a subordinate clause (Kuno 1973): Only *ga* can mark the subject. In (10), the *wa* in the embedded clause can be used only to express contrastive meaning.⁴

- (10) Ken-*wa*/-*ga* [Hiro *-*wa* /-*ga* baiorin-o katta to] itta.
 -Top/-Nom -Top/-Nom violin-Acc bought Comp said
 'Ken said that Hiro had bought a violin.'

It is claimed that these properties cause adult speakers of Japanese to prefer the HIRC structure as in (6a) and (9b) to the HERC structure like (6b) and (9a), given such sentences as in (5) and (7b). When they encounter a *ga*-marked noun, they seem to analyze it as an embedded subject based on their knowledge of particles in order to avoid the unnaturalness resulting from the lack of topic in a matrix clause. In this respect, we can say that children have the same preference as adults. Considering the experimental results, young children also prefer the HIRC interpretation in resolving the ambiguous test sentences like (7b), based on their knowledge of *wa* and *ga*.

Yet, the fact is that the adult informants could assign the HERC interpretation consistent with prosody much more frequently than the child participants. We propose that adults can take advantage of such prosodic information although it contradicts their structural preference, while for young children, lexical/morphological cues such as particles are more influential than prosody. The results of the experiment suggest the possibility that young children know that only *ga* can mark the embedded subject, which they make use of in resolving ambiguity between the HIRC and the HERC. Moreover, their judgment of the subject of a HIRC on the noun with *ga* is consistent with their preference of HIRCs, which might have been reflected in their strong preference for interpreting (7b) as a HIRC. If this is correct, it implies that the participants could determine the appropriate structure based on their knowledge of the subtle one-mora difference between *wa* and *ga*.⁵

To sum up, the current study proposes the following possibilities. The results of the experiment show that children and adults share the same preference of the HIRC interpretation in such sentences as (5) and (7b). Specifically, the experiment provides the finding that children and adults share the

³ In spoken Japanese, phonologically-empty subjects seem much more frequent than overt subjects with *wa* or *ga*. For instance, Nakayama (1996) analyzed adults' speech data in three Japanese-acquiring children's corpora and found that the percentage of the phonologically-empty subjects among the sentences which could have overt subjects was 70% of the time.

⁴ Kuroda (2005) points out that a few verbs such as *shitte-iru* "know" and *omou* "think" allow non-contrastive *wa* to mark the embedded subjects, though this is irrelevant to the current study.

⁵ Thanks go to Takuya Goro who pointed out to me another possible account for this performance of children based on the distinction of *wa* and *ga* by Kuroda (2005). I have left this possibility to be explored for future research.

same strategy by which they determine a priority interpretation in case that their linguistic knowledge allows multiple interpretations to an ambiguous sentence. This provides evidence in support of the proposal by Crain and Thornton (1998) that children's language processing system is virtually the same as adults'.

6. Conclusion

The major findings in this current study are as follows. First, the results of the experiment further confirmed that knowledge of HIRCs emerges very early, which provides support for the parametric proposal concerning HIRCs and evidence for the operation of abstract, interacting parameters. Second, given sentences ambiguous between the HIRC and the HERC interpretations, prosody enables children to easily determine its appropriate reading but does not play a decisive role to do so. Finally, the results of the experiment are compatible with a continuity view of language processing system in that children have the same preference as adults in resolving the ambiguity between the HIRC and the HERC.

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